



SEQUENCE LISTING

<110> MOULAND, Andrew S.
COHEN, Eric A.
WICKHAM, Louise
LUO, Ming
DUCHAIINE, Thomas

<120> MAMMALIAN STAUFEN AND USE THEREOF

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<140> 09/316,048

<141> 1999-05-21

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Gln	Ala	Ala	Lys	His	Asp	Ala	Ala	Ala	Lys	Ala	Leu	Arg	Ile	Leu	Gln	
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				165					170						175	
Val	Glu	Arg	Val	Lys	Pro	Arg	Ile	Lys	Lys	Lys	Thr	Lys	Pro	Ile	Val	
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Lys	Pro	Gln	Thr	Ser	Pro	Glu	Tyr	Gly	Gln	Gly	Ile	Asn	Pro	Ile	Ser	
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Arg	Leu	Ala	Gln	Ile	Gln	Gln	Ala	Lys	Lys	Glu	Lys	Glu	Pro	Glu	Tyr	
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Thr	Leu	Leu	Thr	Glu	Arg	Gly	Leu	Pro	Arg	Arg	Arg	Glu	Phe	Val	Met	
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Gln	Val	Lys	Val	Gly	Asn	His	Thr	Ala	Glu	Gly	Thr	Gly	Thr	Asn	Lys	
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 305 310 315 320
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 325 330 335
 Leu Pro Met Val Pro Glu Val Ala Gln Ala Val Gly Val Ser Gln Gly
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 His His Thr Lys Asp Phe Thr Arg Ala Ala Pro Asn Pro Ala Lys Ala
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 Thr Val Thr Ala Met Ile Ala Arg Glu Leu Leu Tyr Gly Gly Thr Ser
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 Pro Thr Ala Glu Thr Ile Leu Lys Asn Asn Ile Ser Ser Gly His Val
 385 390 395 400
 Pro His Gly Pro Leu Thr Arg Pro Ser Glu Gln Leu Asp Tyr Leu Ser
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 Arg Val Gln Gly Phe Gln Val Glu Tyr Lys Asp Phe Pro Lys Asn Asn
 420 425 430
 Lys Asn Glu Phe Val Ser Leu Ile Asn Cys Ser Ser Gln Pro Pro Leu
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cttccttccc ctctcgccg ccaccgcca ggaccgcgg ccgggggacg agctcggagc 240

agcagccaga gtttattaac cacttaacct ctcagaactg aacaaagaca acattgttcc 300

tggaacgccc tctttttaaa aaaggtagaa ctttagactt catagcactg aattaacctg 360

cactgaaagc tgtttacctg catttgttca cttttgttga aagtgacc atg tct caa 417
Met Ser Gln
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gtt caa gtg caa gtt cag aac cca tct gct gct ctc tca ggg agc caa 465
Val Gln Val Gln Val Gln Asn Pro Ser Ala Ala Leu Ser Gly Ser Gln
5 10 15

ata ctg aac aag aac cag tct ctt ctc tca cag cct ttg atg agt att 513
Ile Leu Asn Lys Asn Gln Ser Leu Leu Ser Gln Pro Leu Met Ser Ile
20 25 30 35

cct tct act act agc tct ctg ccc tct gaa aat gca ggt aga ccc att 561
Pro Ser Thr Thr Ser Ser Leu Pro Ser Glu Asn Ala Gly Arg Pro Ile
40 45 50

caa aac tct gct tta ccc tct gca tct att aca tcc acc agt gca gct 609
Gln Asn Ser Ala Leu Pro Ser Ala Ser Ile Thr Ser Thr Ser Ala Ala
55 60 65

gca gaa agc ata acc cct act gta gaa cta aat gca ctg tgc atg aaa 657
Ala Glu Ser Ile Thr Pro Thr Val Glu Leu Asn Ala Leu Cys Met Lys
70 75 80

ctt gga aaa aaa cca atg tat aag cct gtt gac cct tac tct cgg atg 705
Leu Gly Lys Lys Pro Met Tyr Lys Pro Val Asp Pro Tyr Ser Arg Met
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cag tcc acc tat aac tac aac atg aga gga ggt gct tat ccc ccg agg 753
Gln Ser Thr Tyr Asn Tyr Asn Met Arg Gly Gly Ala Tyr Pro Pro Arg
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120 125 130

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135 140 145

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Ala Lys His Asp Ala Ala Ala Lys Ala Leu Arg Ile Leu Gln Asn Glu	
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Pro Leu Pro Glu Arg Leu Glu Val Asn Gly Arg Glu Ser Glu Glu Glu	
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Asn Leu Asn Lys Ser Glu Ile Ser Gln Val Phe Glu Ile Ala Leu Lys	
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Arg Asn Leu Pro Val Asn Phe Glu Val Ala Arg Glu Ser Gly Pro Pro	
200 205 210	
cac atg aag aac ttt gtg acc aag gtt tcg gtt ggg gag ttt gtg ggg	1089
His Met Lys Asn Phe Val Thr Lys Val Ser Val Gly Glu Phe Val Gly	
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gaa ggt gaa ggg aaa agc aag aag att tca aag aaa aat gcc gcc ata	1137
Glu Gly Glu Gly Lys Ser Lys Lys Ile Ser Lys Lys Asn Ala Ala Ile	
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gct gtt ctt gag gag ctg aag aag tta ccg ccc ctg cct gca gtt gaa	1185
Ala Val Leu Glu Glu Leu Lys Lys Leu Pro Pro Leu Pro Ala Val Glu	
245 250 255	
cga gta aag cct aga atc aaa aag aaa aca aaa ccc ata gtc aag cca	1233
Arg Val Lys Pro Arg Ile Lys Lys Lys Thr Lys Pro Ile Val Lys Pro	
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Gln Thr Ser Pro Glu Tyr Gly Gln Gly Ile Asn Pro Ile Ser Arg Leu	
280 285 290	
gcc cag atc cag cag gca aaa aag gag aag gag cca gag tac acg ctc	1329
Ala Gln Ile Gln Gln Ala Lys Lys Glu Lys Glu Pro Glu Tyr Thr Leu	
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Leu Thr Glu Arg Gly Leu Pro Arg Arg Arg Glu Phe Val Met Gln Val	
310 315 320	
aag gtt gga aac cac act gca gaa gga acg ggc acc aac aag aag gtg	1425
Lys Val Gly Asn His Thr Ala Glu Gly Thr Gly Thr Asn Lys Lys Val	
325 330 335	
gcc aag cgc aat gca gcc gag aac atg ctg gag atc ctt ggt ttc aaa	1473
Ala Lys Arg Asn Ala Ala Glu Asn Met Leu Glu Ile Leu Gly Phe Lys	
340 345 350 355	
gtc ccg cag cgg cag ccc acc aaa ccc gca ctc aag tca gag gag aag	1521
Val Pro Gln Arg Gln Pro Thr Lys Pro Ala Leu Lys Ser Glu Glu Lys	

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aca ccc ata aag aaa cca ggg gat gga aga aaa gta acc ttt ttt gaa			1569
Thr Pro Ile Lys Lys Pro Gly Asp Gly Arg Lys Val Thr Phe Phe Glu			
375	380	385	
cct ggc tct ggg gat gaa aat ggg act agt aat aaa gag gat gag ttc			1617
Pro Gly Ser Gly Asp Glu Asn Gly Thr Ser Asn Lys Glu Asp Glu Phe			
390	395	400	
agg atg cct tat cta agt cat cag cag ctg cct gct gga att ctt ccc			1665
Arg Met Pro Tyr Leu Ser His Gln Gln Leu Pro Ala Gly Ile Leu Pro			
405	410	415	
atg gtg ccc gag gtc gcc cag gct gta gga gtt agt caa gga cat cac			1713
Met Val Pro Glu Val Ala Gln Ala Val Gly Val Ser Gln Gly His His			
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acc aaa gat ttt acc agg gca gct ccg aat cct gcc aag gcc acg gta			1761
Thr Lys Asp Phe Thr Arg Ala Ala Pro Asn Pro Ala Lys Ala Thr Val			
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act gcc atg ata gcc cga gag ttg ttg tat ggg ggc acc tcg ccc aca			1809
Thr Ala Met Ile Ala Arg Glu Leu Leu Tyr Gly Gly Thr Ser Pro Thr			
455	460	465	
gcc gag acc att tta aag aat aac atc tct tca ggc cac gta ccc cat			1857
Ala Glu Thr Ile Leu Lys Asn Asn Ile Ser Ser Gly His Val Pro His			
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gga cct ctc acg aga ccc tct gag caa ctg gac tat ctt tcc aga gtc			1905
Gly Pro Leu Thr Arg Pro Ser Glu Gln Leu Asp Tyr Leu Ser Arg Val			
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Gln Gly Phe Gln Val Glu Tyr Lys Asp Phe Pro Lys Asn Asn Lys Asn			
500	505	510	515
gaa ttt gta tct ctt atc aat tgc tcc tct cag cca cct ctg atc agc			2001
Glu Phe Val Ser Leu Ile Asn Cys Ser Ser Gln Pro Pro Leu Ile Ser			
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cat ggt atc ggc aag gat gtg gag tcc tgc cat gat atg gct gcg ctg			2049
His Gly Ile Gly Lys Asp Val Glu Ser Cys His Asp Met Ala Ala Leu			
535	540	545	
aac atc tta aag ttg ctg tct gag ttg gac caa caa agt aca gag atg			2097
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550	555	560	
cca aga aca gga aac gga cca atg tct gtg tgt ggg agg tgc			2139
Pro Arg Thr Gly Asn Gly Pro Met Ser Val Cys Gly Arg Cys			
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Met Ser Ile Pro Ser Thr Thr Ser Ser Leu Pro Ser Glu Asn Ala Gly	35	40	45
Arg Pro Ile Gln Asn Ser Ala Leu Pro Ser Ala Ser Ile Thr Ser Thr	50	55	60
Ser Ala Ala Ala Glu Ser Ile Thr Pro Thr Val Glu Leu Asn Ala Leu	65	70	75
Cys Met Lys Leu Gly Lys Lys Pro Met Tyr Lys Pro Val Asp Pro Tyr	85	90	95
Ser Arg Met Gln Ser Thr Tyr Asn Tyr Asn Met Arg Gly Gly Ala Tyr	100	105	110
Pro Pro Arg Tyr Phe Tyr Pro Phe Pro Val Pro Pro Leu Leu Tyr Gln	115	120	125
Val Glu Leu Ser Val Gly Gly Gln Gln Phe Asn Gly Lys Gly Lys Thr	130	135	140
Arg Gln Ala Ala Lys His Asp Ala Ala Ala Lys Ala Leu Arg Ile Leu	145	150	155
Gln Asn Glu Pro Leu Pro Glu Arg Leu Glu Val Asn Gly Arg Glu Ser	165	170	175
Glu Glu Glu Asn Leu Asn Lys Ser Glu Ile Ser Gln Val Phe Glu Ile	180	185	190
Ala Leu Lys Arg Asn Leu Pro Val Asn Phe Glu Val Ala Arg Glu Ser	195	200	205
Gly Pro Pro His Met Lys Asn Phe Val Thr Lys Val Ser Val Gly Glu	210	215	220
Phe Val Gly Glu Gly Glu Gly Lys Ser Lys Lys Ile Ser Lys Lys Asn	225	230	235
Ala Ala Ile Ala Val Leu Glu Glu Leu Lys Lys Leu Pro Pro Leu Pro	245	250	255
Ala Val Glu Arg Val Lys Pro Arg Ile Lys Lys Lys Thr Lys Pro Ile	260	265	270
Val Lys Pro Gln Thr Ser Pro Glu Tyr Gly Gln Gly Ile Asn Pro Ile	275	280	285
Ser Arg Leu Ala Gln Ile Gln Gln Ala Lys Lys Glu Lys Glu Pro Glu			

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Tyr	Thr	Leu	Leu	Thr	Glu	Arg	Gly	Leu	Pro	Arg	Arg	Arg	Glu	Phe	Val
305					310					315					320
Met	Gln	Val	Lys	Val	Gly	Asn	His	Thr	Ala	Glu	Gly	Thr	Gly	Thr	Asn
				325					330					335	
Lys	Lys	Val	Ala	Lys	Arg	Asn	Ala	Ala	Glu	Asn	Met	Leu	Glu	Ile	Leu
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Asp	Glu	Phe	Arg	Met	Pro	Tyr	Leu	Ser	His	Gln	Gln	Leu	Pro	Ala	Gly
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Ile	Leu	Pro	Met	Val	Pro	Glu	Val	Ala	Gln	Ala	Val	Gly	Val	Ser	Gln
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Gly	His	His	Thr	Lys	Asp	Phe	Thr	Arg	Ala	Ala	Pro	Asn	Pro	Ala	Lys
		435					440					445			
Ala	Thr	Val	Thr	Ala	Met	Ile	Ala	Arg	Glu	Leu	Leu	Tyr	Gly	Gly	Thr
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Val	Pro	His	Gly	Pro	Leu	Thr	Arg	Pro	Ser	Glu	Gln	Leu	Asp	Tyr	Leu
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Ser	Arg	Val	Gln	Gly	Phe	Gln	Val	Glu	Tyr	Lys	Asp	Phe	Pro	Lys	Asn
			500					505					510		
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	530					535					540				
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545					550					555					560
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Met Lys Leu Gly Lys Lys Pro Met Tyr Lys Pro Val
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gac cct tac tct cgg atg cag tcc acc tat aac tac aac atg aga gga 577
Asp Pro Tyr Ser Arg Met Gln Ser Thr Tyr Asn Tyr Asn Met Arg Gly
15 20 25

ggc gct tat ccc ccg agg tac ttt tac cca ttt cca gtt cca cct tta 625
Gly Ala Tyr Pro Pro Arg Tyr Phe Tyr Pro Phe Pro Val Pro Pro Leu
30 35 40

ctt tat caa gtg gaa ctt tct gtg gga gga cag caa ttt aat ggc aaa 673
Leu Tyr Gln Val Glu Leu Ser Val Gly Gly Gln Gln Phe Asn Gly Lys
45 50 55 60

gga aag aca aga cag gct gcg aaa cac gat gct gct gcc aaa gcg ttg 721
Gly Lys Thr Arg Gln Ala Ala Lys His Asp Ala Ala Ala Lys Ala Leu
65 70 75

agg atc ctg cag aat gag ccc ctg cca gag agg ctg gag gtg aat gga 769
Arg Ile Leu Gln Asn Glu Pro Leu Pro Glu Arg Leu Glu Val Asn Gly
80 85 90

aga gaa tcc gaa gaa gaa aat ctc aat aaa tct gaa ata agt caa gtg	817
Arg Glu Ser Glu Glu Glu Asn Leu Asn Lys Ser Glu Ile Ser Gln Val	
95 100 105	
ttt gag att gca ctt aaa cgg aac ttg cct gtg aat ttc gag gtg gcc	865
Phe Glu Ile Ala Leu Lys Arg Asn Leu Pro Val Asn Phe Glu Val Ala	
110 115 120	
cgg gag agt ggc cca ccc cac atg aag aac ttt gtg acc aag gtt tcg	913
Arg Glu Ser Gly Pro Pro His Met Lys Asn Phe Val Thr Lys Val Ser	
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Val Gly Glu Phe Val Gly Glu Gly Glu Gly Lys Ser Lys Lys Ile Ser	
145 150 155	
aag aaa aat gcc gcc ata gct gtt ctt gag gag ctg aag aag tta ccg	1009
Lys Lys Asn Ala Ala Ile Ala Val Leu Glu Glu Leu Lys Lys Leu Pro	
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ccc ctg cct gca gtt gaa cga gta aag cct aga atc aaa aag aaa aca	1057
Pro Leu Pro Ala Val Glu Arg Val Lys Pro Arg Ile Lys Lys Lys Thr	
175 180 185	
aaa ccc ata gtc aag cca cag aca agc cca gaa tat ggc cag ggg atc	1105
Lys Pro Ile Val Lys Pro Gln Thr Ser Pro Glu Tyr Gly Gln Gly Ile	
190 195 200	
aat ccg att agc cga ctg gcc cag atc cag cag gca aaa aag gag aag	1153
Asn Pro Ile Ser Arg Leu Ala Gln Ile Gln Gln Ala Lys Lys Glu Lys	
205 210 215 220	
gag cca gag tac acg ctc ctc aca gag cga ggc ctc ccg cgc cgc agg	1201
Glu Pro Glu Tyr Thr Leu Leu Thr Glu Arg Gly Leu Pro Arg Arg Arg	
225 230 235	
gag ttt gtg atg cag gtg aag gtt gga aac cac act gca gaa gga acg	1249
Glu Phe Val Met Gln Val Lys Val Gly Asn His Thr Ala Glu Gly Thr	
240 245 250	
ggc acc aac aag aag gtg gcc aag cgc aat gca gcc gag aac atg ctg	1297
Gly Thr Asn Lys Lys Val Ala Lys Arg Asn Ala Ala Glu Asn Met Leu	
255 260 265	
gag atc ctt ggt ttc aaa gtc ccg cag cgg cag ccc acc aaa ccc gca	1345
Glu Ile Leu Gly Phe Lys Val Pro Gln Arg Gln Pro Thr Lys Pro Ala	
270 275 280	
ctc aag tca gag gag aag aca ccc ata aag aaa cca ggg gat gga aga	1393
Leu Lys Ser Glu Glu Lys Thr Pro Ile Lys Lys Pro Gly Asp Gly Arg	
285 290 295 300	
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Lys Val Thr Phe Phe Glu Pro Gly Ser Gly Asp Glu Asn Gly Thr Ser	

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320	325	330	
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Pro Ala Gly Ile Leu Pro Met Val Pro Glu Val Ala Gln Ala Val Gly			
335	340	345	
gtt agt caa gga cat cac acc aaa gat ttt acc agg gca gct ccg aat			1585
Val Ser Gln Gly His His Thr Lys Asp Phe Thr Arg Ala Ala Pro Asn			
350	355	360	
cct gcc aag gcc acg gta act gcc atg ata gcc cga gag ttg ttg tat			1633
Pro Ala Lys Ala Thr Val Thr Ala Met Ile Ala Arg Glu Leu Leu Tyr			
365	370	375	380
ggg ggc acc tcg ccc aca gcc gag acc att tta aag aat aac atc tct			1681
Gly Gly Thr Ser Pro Thr Ala Glu Thr Ile Leu Lys Asn Asn Ile Ser			
385	390	395	
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Ser Gly His Val Pro His Gly Pro Leu Thr Arg Pro Ser Glu Gln Leu			
400	405	410	
gac tat ctt tcc aga gtc cag gga ttc cag gtt gaa tac aaa gac ttc			1777
Asp Tyr Leu Ser Arg Val Gln Gly Phe Gln Val Glu Tyr Lys Asp Phe			
415	420	425	
ccc aaa aac aac aag aac gaa ttt gta tct ctt atc aat tgc tcc tct			1825
Pro Lys Asn Asn Lys Asn Glu Phe Val Ser Leu Ile Asn Cys Ser Ser			
430	435	440	
cag cca cct ctg atc agc cat ggt atc ggc aag gat gtg gag tcc tgc			1873
Gln Pro Pro Leu Ile Ser His Gly Ile Gly Lys Asp Val Glu Ser Cys			
445	450	455	460
cat gat atg gct gcg ctg aac atc tta aag ttg ctg tct gag ttg gac			1921
His Asp Met Ala Ala Leu Asn Ile Leu Lys Leu Leu Ser Glu Leu Asp			
465	470	475	
caa caa agt aca gag atg cca aga aca gga aac gga cca atg tct gtg			1969
Gln Gln Ser Thr Glu Met Pro Arg Thr Gly Asn Gly Pro Met Ser Val			
480	485	490	
tgt ggg agg tgc tgaacctttt ctggccatga accattataa aatcccaaca			2021
Cys Gly Arg Cys			
495			
tatatactga aaatactgaa actgctttga aaatttgga tttctgatac ctccagtggg			2081
cogagagaca cggtgggtaa aggatgtggg cagcagcagg gaagacaaca gaaacacaag			2141

gaggcggctg tggccggctg gactgtgctg gggtttggtg tgatggccac tcggtgacct 2201
 ggcggtccct acgcaatagc agctgacctg ggggaagaag ggctgcccag ccagctgggt 2261
 ctcccgggac accagcagat ccacaccctg ggcacctcog tgtttggtct ttttttccc 2321
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<211> 496

<212> PRT

<213> Homo sapiens

<400> 8

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			20					25					30		

Pro Arg Tyr Phe Tyr Pro Phe Pro Val Pro Pro Leu Leu Tyr Gln Val
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Glu Leu Ser Val Gly Gly Gln Gln Phe Asn Gly Lys Gly Lys Thr Arg
 50 55 60

Gln Ala Ala Lys His Asp Ala Ala Ala Lys Ala Leu Arg Ile Leu Gln
 65 70 75 80

Asn Glu Pro Leu Pro Glu Arg Leu Glu Val Asn Gly Arg Glu Ser Glu
 85 90 95

Glu Glu Asn Leu Asn Lys Ser Glu Ile Ser Gln Val Phe Glu Ile Ala
 100 105 110

Leu Lys Arg Asn Leu Pro Val Asn Phe Glu Val Ala Arg Glu Ser Gly
 115 120 125

Pro Pro His Met Lys Asn Phe Val Thr Lys Val Ser Val Gly Glu Phe
 130 135 140

Val Gly Glu Gly Glu Gly Lys Ser Lys Lys Ile Ser Lys Lys Asn Ala
 145 150 155 160

Ala Ile Ala Val Leu Glu Glu Leu Lys Lys Leu Pro Pro Leu Pro Ala
 165 170 175

Val Glu Arg Val Lys Pro Arg Ile Lys Lys Lys Thr Lys Pro Ile Val
 180 185 190

Lys Pro Gln Thr Ser Pro Glu Tyr Gly Gln Gly Ile Asn Pro Ile Ser
 195 200 205

Arg Leu Ala Gln Ile Gln Gln Ala Lys Lys Glu Lys Glu Pro Glu Tyr
 210 215 220

Thr Leu Leu Thr Glu Arg Gly Leu Pro Arg Arg Arg Glu Phe Val Met
 225 230 235 240

Gln Val Lys Val Gly Asn His Thr Ala Glu Gly Thr Gly Thr Asn Lys
 245 250 255

Lys Val Ala Lys Arg Asn Ala Ala Glu Asn Met Leu Glu Ile Leu Gly
 260 265 270

Phe Lys Val Pro Gln Arg Gln Pro Thr Lys Pro Ala Leu Lys Ser Glu
 275 280 285

Glu Lys Thr Pro Ile Lys Lys Pro Gly Asp Gly Arg Lys Val Thr Phe
 290 295 300

Phe Glu Pro Gly Ser Gly Asp Glu Asn Gly Thr Ser Asn Lys Glu Asp
 305 310 315 320

Glu	Phe	Arg	Met	Pro	Tyr	Leu	Ser	His	Gln	Gln	Leu	Pro	Ala	Gly	Ile	
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Leu	Pro	Met	Val	Pro	Glu	Val	Ala	Gln	Ala	Val	Gly	Val	Ser	Gln	Gly	
			340					345					350			
His	His	Thr	Lys	Asp	Phe	Thr	Arg	Ala	Ala	Pro	Asn	Pro	Ala	Lys	Ala	
		355					360					365				
Thr	Val	Thr	Ala	Met	Ile	Ala	Arg	Glu	Leu	Leu	Tyr	Gly	Gly	Thr	Ser	
		370				375					380					
Pro	Thr	Ala	Glu	Thr	Ile	Leu	Lys	Asn	Asn	Ile	Ser	Ser	Gly	His	Val	
385					390					395					400	
Pro	His	Gly	Pro	Leu	Thr	Arg	Pro	Ser	Glu	Gln	Leu	Asp	Tyr	Leu	Ser	
				405					410					415		
Arg	Val	Gln	Gly	Phe	Gln	Val	Glu	Tyr	Lys	Asp	Phe	Pro	Lys	Asn	Asn	
			420					425					430			
Lys	Asn	Glu	Phe	Val	Ser	Leu	Ile	Asn	Cys	Ser	Ser	Gln	Pro	Pro	Leu	
		435					440					445				
Ile	Ser	His	Gly	Ile	Gly	Lys	Asp	Val	Glu	Ser	Cys	His	Asp	Met	Ala	
		450				455					460					
Ala	Leu	Asn	Ile	Leu	Lys	Leu	Leu	Ser	Glu	Leu	Asp	Gln	Gln	Ser	Thr	
465					470					475					480	
Glu	Met	Pro	Arg	Thr	Gly	Asn	Gly	Pro	Met	Ser	Val	Cys	Gly	Arg	Cys	
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 <222> (3)..(1784)

<220>
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	Gly	Ala	Ala	Pro	Pro	Pro	Ser	Leu	Pro	Ala	Arg	Leu	Arg	Ala	Pro	
	1					5				10				15		
agc cgc tct tca gcg ttt gcg ctg gct gtc gtc gcg tct gtg tgc gct																95

Ser	Arg	Ser	Ser	Ala	Phe	Ala	Leu	Ala	Val	Val	Ala	Ser	Val	Cys	Ala	
				20					25					30		
ccc	cct	tct	tct	gag	ccc	cgg	cct	ggc	ggc	gcc	cgc	ctt	cgc	ctc	cgc	143
Pro	Pro	Ser	Ser	Glu	Pro	Arg	Pro	Gly	Gly	Ala	Arg	Leu	Arg	Leu	Arg	
			35					40					45			
cac	tcc	gcc	tct	tcc	ctc	ctc	tgg	tcg	gcc	cct	ttt	tcc	tcg	ccg	tct	191
His	Ser	Ala	Ser	Ser	Leu	Leu	Trp	Ser	Ala	Pro	Phe	Ser	Ser	Pro	Ser	
		50					55					60				
tca	ctt	gct	tct	tca	cct	cct	cgc	cgc	cgc	cca	aga	ccg	ccg	gcc	ccg	239
Ser	Leu	Ala	Ser	Ser	Pro	Pro	Arg	Arg	Arg	Pro	Arg	Pro	Pro	Ala	Pro	
	65					70				75						
gga	cga	gct	ctg	ggg	aag	cag	cca	gaa	agt	ata	gct	tct	acc	att	gag	287
Gly	Arg	Ala	Leu	Gly	Lys	Gln	Pro	Glu	Ser	Ile	Ala	Ser	Thr	Ile	Glu	
80					85					90					95	
ctc	aat	gca	ctg	tgt	gtg	aaa	ctg	gaa	aga	aaa	cca	atg	tat	aag	ccc	335
Leu	Asn	Ala	Leu	Cys	Val	Lys	Leu	Glu	Arg	Lys	Pro	Met	Tyr	Lys	Pro	
				100					105					110		
gtg	gac	cct	cac	tct	cgg	atg	cag	tcc	acc	tac	agc	tat	ggc	atg	cgt	383
Val	Asp	Pro	His	Ser	Arg	Met	Gln	Ser	Thr	Tyr	Ser	Tyr	Gly	Met	Arg	
			115					120					125			
gga	ggt	gcc	tat	ccc	ccc	aga	tac	ttt	tac	cca	ttt	cca	gtc	cca	cct	431
Gly	Gly	Ala	Tyr	Pro	Pro	Arg	Tyr	Phe	Tyr	Pro	Phe	Pro	Val	Pro	Pro	
		130					135					140				
tta	ctc	tac	caa	gtt	gag	ctc	tcc	gtg	ggc	gga	cag	cag	ttt	aat	ggg	479
Leu	Leu	Tyr	Gln	Val	Glu	Leu	Ser	Val	Gly	Gly	Gln	Gln	Phe	Asn	Gly	
	145					150					155					
aaa	gga	aag	atg	aga	cca	ccc	gtg	aaa	cac	gat	gcc	cct	gcc	cgt	gcg	527
Lys	Gly	Lys	Met	Arg	Pro	Pro	Val	Lys	His	Asp	Ala	Pro	Ala	Arg	Ala	
160					165					170					175	
ctg	agg	act	ctg	cag	agt	gaa	ccc	ctg	cca	gaa	agg	ttg	gag	gta	aat	575
Leu	Arg	Thr	Leu	Gln	Ser	Glu	Pro	Leu	Pro	Glu	Arg	Leu	Glu	Val	Asn	
				180					185					190		
gga	aga	gaa	gca	gag	gaa	gaa	aac	ctc	aat	aaa	tcg	gaa	ata	agc	caa	623
Gly	Arg	Glu	Ala	Glu	Glu	Glu	Asn	Leu	Asn	Lys	Ser	Glu	Ile	Ser	Gln	
			195					200					205			
gtg	ttt	gaa	att	gcg	ctg	aag	cgg	aat	ttg	cct	gtg	aat	ttt	gag	gtg	671
Val	Phe	Glu	Ile	Ala	Leu	Lys	Arg	Asn	Leu	Pro	Val	Asn	Phe	Glu	Val	
		210					215					220				
gcc	cgg	gag	agt	ggc	cca	cca	cac	atg	aag	aac	ttt	gtg	acc	agg	gtt	719
Ala	Arg	Glu	Ser	Gly	Pro	Pro	His	Met	Lys	Asn	Phe	Val	Thr	Arg	Val	
	225					230					235					

tca gtt ggg gaa ttt gta ggg gaa gga gaa ggg aaa agc aag aag atc	767
Ser Val Gly Glu Phe Val Gly Glu Gly Glu Gly Lys Ser Lys Lys Ile	
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tcc aag aag aat gcg gcc agg gct gtt ctg gag cag ctt agg agg ctg	815
Ser Lys Lys Asn Ala Ala Arg Ala Val Leu Glu Gln Leu Arg Arg Leu	
260 265 270	
cca ccc ctc cct gct gtg gag cga gtg aag ccc aga atc aag aag aaa	863
Pro Pro Leu Pro Ala Val Glu Arg Val Lys Pro Arg Ile Lys Lys Lys	
275 280 285	
agt cag ccc acc tgc aag aca gcc ccg gat tat ggc caa ggg atg aat	911
Ser Gln Pro Thr Cys Lys Thr Ala Pro Asp Tyr Gly Gln Gly Met Asn	
290 295 300	
cct att agt aga ctt gca cag atc cag cag gca aaa aag gag aag gag	959
Pro Ile Ser Arg Leu Ala Gln Ile Gln Gln Ala Lys Lys Glu Lys Glu	
305 310 315	
cca gag tac atg ctc ctt aca gaa cga ggt ctt cca cgt cgc agg gag	1007
Pro Glu Tyr Met Leu Leu Thr Glu Arg Gly Leu Pro Arg Arg Arg Glu	
320 325 330 335	
ttt gtg atg cag gta aag gtt ggg cat cac act gca gaa gga gtg ggt	1055
Phe Val Met Gln Val Lys Val Gly His His Thr Ala Glu Gly Val Gly	
340 345 350	
acc aat aag aag gtg gcc aag cgt aat gct gct gag aac atg ctg gag	1103
Thr Asn Lys Lys Val Ala Lys Arg Asn Ala Ala Glu Asn Met Leu Glu	
355 360 365	
atc ctg ggg ttc aaa gtt ccc cag gcg cag cct gcc aag cca gca ctc	1151
Ile Leu Gly Phe Lys Val Pro Gln Ala Gln Pro Ala Lys Pro Ala Leu	
370 375 380	
aaa tca gaa gag aag act cca gta aag aaa cca gga gac gga agg aaa	1199
Lys Ser Glu Glu Lys Thr Pro Val Lys Lys Pro Gly Asp Gly Arg Lys	
385 390 395	
gta acg ttt ttt gaa cct agc cct ggg gat gaa aat gga act agt aac	1247
Val Thr Phe Phe Glu Pro Ser Pro Gly Asp Glu Asn Gly Thr Ser Asn	
400 405 410 415	
aag gac gag gag ttc agg atg cct tat ctt agc cat cag cag ctg cca	1295
Lys Asp Glu Glu Phe Arg Met Pro Tyr Leu Ser His Gln Gln Leu Pro	
420 425 430	
gct gga att ctc ccc atg gtg ccg gaa gtt gcc cag gct gtc ggg gtt	1343
Ala Gly Ile Leu Pro Met Val Pro Glu Val Ala Gln Ala Val Gly Val	
435 440 445	
agt caa gga cac cac acc aaa gat ttc acc agg gca gct cca aat cct	1391
Ser Gln Gly His His Thr Lys Asp Phe Thr Arg Ala Ala Pro Asn Pro	

450	455	460	
gcc aag gca acg gta act gcc atg ata gcc cga gag ttg ttg tac ggg			1439
Ala Lys Ala Thr Val Thr Ala Met Ile Ala Arg Glu Leu Leu Tyr Gly			
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ggc acc tcg ccc aca gcc gag acc att tta aag agt aac atc tct tca			1487
Gly Thr Ser Pro Thr Ala Glu Thr Ile Leu Lys Ser Asn Ile Ser Ser			
480	485	490	495
ggc cac gta ccc cat gga cct cgc act aga ccc tct gag caa ctg tac			1535
Gly His Val Pro His Gly Pro Arg Thr Arg Pro Ser Glu Gln Leu Tyr			
500	505	510	
tac ctt tcc aga gcc cag gga ttc cag gtt gaa tac aaa gat ttt ccc			1583
Tyr Leu Ser Arg Ala Gln Gly Phe Gln Val Glu Tyr Lys Asp Phe Pro			
515	520	525	
aag aac aac aag aac gag tgt gta tct ctc atc aac tgc tcc tca cag			1631
Lys Asn Asn Lys Asn Glu Cys Val Ser Leu Ile Asn Cys Ser Ser Gln			
530	535	540	
ccg cct ctc gtc agt cat ggc atc ggc aag gat gtg gag tcc tgt cat			1679
Pro Pro Leu Val Ser His Gly Ile Gly Lys Asp Val Glu Ser Cys His			
545	550	555	
gat atg gct gca ctg aac att tta aag ctg ctg tct gag ttg gac caa			1727
Asp Met Ala Ala Leu Asn Ile Leu Lys Leu Leu Ser Glu Leu Asp Gln			
560	565	570	575
cag agc aca gag atg cca aga aca gga aat gga cca gtt tca gcg tgc			1775
Gln Ser Thr Glu Met Pro Arg Thr Gly Asn Gly Pro Val Ser Ala Cys			
580	585	590	
ggg agg tgc tgaacctttt ctggccacaa accattataa aacccaacat			1824
Gly Arg Cys			
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 <213> Mus musculus

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 35 40 45
 Ser Ala Ser Ser Leu Leu Trp Ser Ala Pro Phe Ser Ser Pro Ser Ser
 50 55 60
 Leu Ala Ser Ser Pro Pro Arg Arg Arg Pro Arg Pro Pro Ala Pro Gly
 65 70 75 80
 Arg Ala Leu Gly Lys Gln Pro Glu Ser Ile Ala Ser Thr Ile Glu Leu
 85 90 95
 Asn Ala Leu Cys Val Lys Leu Glu Arg Lys Pro Met Tyr Lys Pro Val
 100 105 110
 Asp Pro His Ser Arg Met Gln Ser Thr Tyr Ser Tyr Gly Met Arg Gly
 115 120 125
 Gly Ala Tyr Pro Pro Arg Tyr Phe Tyr Pro Phe Pro Val Pro Pro Leu
 130 135 140
 Leu Tyr Gln Val Glu Leu Ser Val Gly Gly Gln Gln Phe Asn Gly Lys
 145 150 155 160
 Gly Lys Met Arg Pro Pro Val Lys His Asp Ala Pro Ala Arg Ala Leu
 165 170 175
 Arg Thr Leu Gln Ser Glu Pro Leu Pro Glu Arg Leu Glu Val Asn Gly
 180 185 190
 Arg Glu Ala Glu Glu Glu Asn Leu Asn Lys Ser Glu Ile Ser Gln Val
 195 200 205
 Phe Glu Ile Ala Leu Lys Arg Asn Leu Pro Val Asn Phe Glu Val Ala
 210 215 220
 Arg Glu Ser Gly Pro Pro His Met Lys Asn Phe Val Thr Arg Val Ser

225					230					235				240
Val	Gly	Glu	Phe	Val	Gly	Glu	Gly	Glu	Gly	Lys	Ser	Lys	Lys	Ile
				245					250					255
Lys	Lys	Asn	Ala	Ala	Arg	Ala	Val	Leu	Glu	Gln	Leu	Arg	Arg	Leu
			260					265					270	Pro
Pro	Leu	Pro	Ala	Val	Glu	Arg	Val	Lys	Pro	Arg	Ile	Lys	Lys	Lys
		275					280					285		Ser
Gln	Pro	Thr	Cys	Lys	Thr	Ala	Pro	Asp	Tyr	Gly	Gln	Gly	Met	Asn
	290					295					300			Pro
Ile	Ser	Arg	Leu	Ala	Gln	Ile	Gln	Gln	Ala	Lys	Lys	Glu	Lys	Glu
305					310					315				320
Glu	Tyr	Met	Leu	Leu	Thr	Glu	Arg	Gly	Leu	Pro	Arg	Arg	Arg	Glu
			325						330					335
Val	Met	Gln	Val	Lys	Val	Gly	His	His	Thr	Ala	Glu	Gly	Val	Gly
			340					345					350	Thr
Asn	Lys	Lys	Val	Ala	Lys	Arg	Asn	Ala	Ala	Glu	Asn	Met	Leu	Glu
	355						360					365		Ile
Leu	Gly	Phe	Lys	Val	Pro	Gln	Ala	Gln	Pro	Ala	Lys	Pro	Ala	Leu
	370					375					380			Lys
Ser	Glu	Glu	Lys	Thr	Pro	Val	Lys	Lys	Pro	Gly	Asp	Gly	Arg	Lys
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Thr	Phe	Phe	Glu	Pro	Ser	Pro	Gly	Asp	Glu	Asn	Gly	Thr	Ser	Asn
				405					410					415
Asp	Glu	Glu	Phe	Arg	Met	Pro	Tyr	Leu	Ser	His	Gln	Gln	Leu	Pro
			420					425					430	Ala
Gly	Ile	Leu	Pro	Met	Val	Pro	Glu	Val	Ala	Gln	Ala	Val	Gly	Val
	435						440					445		Ser
Gln	Gly	His	His	Thr	Lys	Asp	Phe	Thr	Arg	Ala	Ala	Pro	Asn	Pro
	450					455				460				Ala
Lys	Ala	Thr	Val	Thr	Ala	Met	Ile	Ala	Arg	Glu	Leu	Leu	Tyr	Gly
465					470					475				480
Thr	Ser	Pro	Thr	Ala	Glu	Thr	Ile	Leu	Lys	Ser	Asn	Ile	Ser	Ser
				485					490					495
His	Val	Pro	His	Gly	Pro	Arg	Thr	Arg	Pro	Ser	Glu	Gln	Leu	Tyr
		500					505						510	Tyr
Leu	Ser	Arg	Ala	Gln	Gly	Phe	Gln	Val	Glu	Tyr	Lys	Asp	Phe	Pro
	515					520					525			Lys
Asn	Asn	Lys	Asn	Glu	Cys	Val	Ser	Leu	Ile	Asn	Cys	Ser	Ser	Gln
	530					535				540				Pro
Pro	Leu	Val	Ser	His	Gly	Ile	Gly	Lys	Asp	Val	Glu	Ser	Cys	His
545					550					555				560
Met	Ala	Ala	Leu	Asn	Ile	Leu	Lys	Leu	Leu	Ser	Glu	Leu	Asp	Gln
			565						570					575
Ser	Thr	Glu	Met	Pro	Arg	Thr	Gly	Asn	Gly	Pro	Val	Ser	Ala	Cys
			580					585					590	Gly
Arg	Cys													

<210> 11
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 <212> PRT
 <213> Mus musculus

<400> 11

Met	Tyr	Lys	Pro	Val	Asp	Pro	His	Ser	Arg	Met	Gln	Ser	Thr	Tyr	Ser	1	5	10	15
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Pro	Val	Pro	Pro	Leu	Leu	Tyr	Gln	Val	Glu	Leu	Ser	Val	Gly	Gly	Gln	35	40	45	
Gln	Phe	Asn	Gly	Lys	Gly	Lys	Met	Arg	Pro	Pro	Val	Lys	His	Asp	Ala	50	55	60	
Pro	Ala	Arg	Ala	Leu	Arg	Thr	Leu	Gln	Ser	Glu	Pro	Leu	Pro	Glu	Arg	65	70	75	80
Leu	Glu	Val	Asn	Gly	Arg	Glu	Ala	Glu	Glu	Glu	Asn	Leu	Asn	Lys	Ser	85	90	95	
Glu	Ile	Ser	Gln	Val	Phe	Glu	Ile	Ala	Leu	Lys	Arg	Asn	Leu	Pro	Val	100	105	110	
Asn	Phe	Glu	Val	Ala	Arg	Glu	Ser	Gly	Pro	Pro	His	Met	Lys	Asn	Phe	115	120	125	
Val	Thr	Arg	Val	Ser	Val	Gly	Glu	Phe	Val	Gly	Glu	Gly	Glu	Gly	Lys	130	135	140	
Ser	Lys	Lys	Ile	Ser	Lys	Lys	Asn	Ala	Ala	Arg	Ala	Val	Leu	Glu	Gln	145	150	155	160
Leu	Arg	Arg	Leu	Pro	Pro	Leu	Pro	Ala	Val	Glu	Arg	Val	Lys	Pro	Arg	165	170	175	
Ile	Lys	Lys	Lys	Ser	Gln	Pro	Thr	Cys	Lys	Thr	Ala	Pro	Asp	Tyr	Gly	180	185	190	
Gln	Gly	Met	Asn	Pro	Ile	Ser	Arg	Leu	Ala	Gln	Ile	Gln	Gln	Ala	Lys	195	200	205	
Lys	Glu	Lys	Glu	Pro	Glu	Tyr	Met	Leu	Leu	Thr	Glu	Arg	Gly	Leu	Pro	210	215	220	
Arg	Arg	Arg	Glu	Phe	Val	Met	Gln	Val	Lys	Val	Gly	His	His	Thr	Ala	225	230	235	240
Glu	Gly	Val	Gly	Thr	Asn	Lys	Lys	Val	Ala	Lys	Arg	Asn	Ala	Ala	Glu	245	250	255	
Asn	Met	Leu	Glu	Ile	Leu	Gly	Phe	Lys	Val	Pro	Gln	Ala	Gln	Pro	Ala	260	265	270	
Lys	Pro	Ala	Leu	Lys	Ser	Glu	Glu	Lys	Thr	Pro	Val	Lys	Lys	Pro	Gly	275	280	285	
Asp	Gly	Arg	Lys	Val	Thr	Phe	Phe	Glu	Pro	Ser	Pro	Gly	Asp	Glu	Asn	290	295	300	
Gly	Thr	Ser	Asn	Lys	Asp	Glu	Glu	Phe	Arg	Met	Pro	Tyr	Leu	Ser	His	305	310	315	320
Gln	Gln	Leu	Pro	Ala	Gly	Ile	Leu	Pro	Met	Val	Pro	Glu	Val	Ala	Gln	325	330	335	
Ala	Val	Gly	Val	Ser	Gln	Gly	His	His	Thr	Lys	Asp	Phe	Thr	Arg	Ala	340	345	350	
Ala	Pro	Asn	Pro	Ala	Lys	Ala	Thr	Val	Thr	Ala	Met	Ile	Ala	Arg	Glu	355	360	365	
Leu	Leu	Tyr	Gly	Gly	Thr	Ser	Pro	Thr	Ala	Glu	Thr	Ile	Leu	Lys	Ser	370	375	380	
Asn	Ile	Ser	Ser	Gly	His	Val	Pro	His	Gly	Pro	Arg	Thr	Arg	Pro	Ser	385	390	395	400
Glu	Gln	Leu	Tyr	Tyr	Leu	Ser	Arg	Ala	Gln	Gly	Phe	Gln	Val	Glu	Tyr	405	410	415	
Lys	Asp	Phe	Pro	Lys	Asn	Asn	Lys	Asn	Glu	Cys	Val	Ser	Leu	Ile	Asn	420	425	430	

Cys Ser Ser Gln Pro Pro Leu Val Ser His Gly Ile Gly Lys Asp Val
 435 440 445
 Glu Ser Cys His Asp Met Ala Ala Leu Asn Ile Leu Lys Leu Leu Ser
 450 455 460
 Glu Leu Asp Gln Gln Ser Thr Glu Met Pro Arg Thr Gly Asn Gly Pro
 465 470 475 480
 Val Ser Ala Cys Gly Arg Cys
 485

<210> 12
 <211> 16
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: unknown

<400> 12
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 1 5 10 15

<210> 13
 <211> 16
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: unknown

<400> 13
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 1 5 10 15

<210> 14
 <211> 31
 <212> PRT
 <213> Unknown Organism

<220>
 <223> Description of Unknown Organism: unknown

<400> 14
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 1 5 10 15

Thr Ala Gly Cys Thr Thr Cys Thr Ala Cys Cys Ala Thr Thr Gly
 20 25 30

<210> 15

<211> 31
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<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unknown

<400> 15
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1 5 10 15
Thr Ala Gly Cys Thr Thr Cys Thr Ala Cys Cys Ala Thr Thr Gly
20 25 30

<210> 16
<211> 36
<212> PRT
<213> Unknown Organism

<220>
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1 5 10 15
Thr Gly Gly Cys Cys Ala Gly Ala Ala Ala Gly Gly Thr Thr Cys
20 25 30
Ala Gly Cys Ala
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<210> 17
<211> 27
<212> PRT
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<220>
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<400> 17
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1 5 10 15
Thr Ala Gly Ala Cys Thr Thr Gly Cys Ala Cys
20 25

<210> 18
<211> 29
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<220>

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<400> 18

Gly Cys Thr Cys Thr Ala Gly Ala Thr Thr Cys Ala Ala Ala Gly Thr
1 5 10 15

Thr Cys Cys Cys Cys Ala Gly Gly Cys Gly Cys Ala Gly
20 25

<210> 19

<211> 29

<212> PRT

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<220>

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<400> 19

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1 5 10 15

Gly Gly Thr Cys Thr Ala Gly Thr Gly Cys Gly Ala Gly
20 25

<210> 20

<211> 22

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: unknown

<400> 20

Cys Ala Ala Thr Gly Thr Ala Thr Ala Ala Gly Cys Cys Cys Gly Thr
1 5 10 15

Gly Gly Ala Cys Cys Cys
20

<210> 21

<211> 36

<212> PRT

<213> Unknown Organism

<220>

<223> Description of Unknown Organism: unknown

<400> 21

Ala Ala Ala Ala Ala Gly Cys Thr Thr Gly Thr Gly Cys Ala Ala Gly
1 5 10 15

Thr Cys Thr Ala Cys Thr Ala Ala Thr Ala Gly Gly Ala Thr Thr Cys
20 25 30

Ala Thr Cys Cys
35

<210> 22
<211> 18
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unknown

<400> 22
Ala Thr Ala Gly Cys Cys Cys Gly Ala Gly Ala Gly Thr Thr Gly Thr
1 5 10 15

Thr Gly

<210> 23
<211> 36
<212> PRT
<213> Unknown Organism

<220>
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<400> 23
Thr Ala Cys Ala Thr Ala Ala Gly Cys Thr Thr Cys Thr Ala Gly Ala
1 5 10 15

Thr Gly Gly Cys Cys Ala Gly Ala Ala Ala Ala Gly Gly Thr Thr Cys
20 25 30

Ala Gly Cys Ala
35

<210> 24
<211> 29
<212> PRT
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<220>
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<400> 24
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1 5 10 15

Gly Cys Cys Arg Gly Gly Cys Thr Gly Cys Gly Gly Gly
20 25

<210> 25
<211> 44
<212> PRT
<213> Unknown Organism

<220>
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<400> 25
Thr Ala Cys Ala Ala Thr Cys Thr Ala Gly Ala Thr Thr Ala Thr Cys
1 5 10 15
Ala Gly Cys Gly Gly Cys Cys Gly Cys Ala Cys Cys Thr Cys Cys Cys
20 25 30
Ala Cys Ala Cys Ala Cys Ala Gly Ala Cys Ala Thr
35 40

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<211> 41
<212> PRT
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<220>
<223> Description of Unknown Organism: unknown

<400> 26
Thr Ala Cys Ala Thr Ala Ala Gly Cys Thr Thr Ala Ala Gly Cys Cys
1 5 10 15
Ala Cys Cys Ala Thr Gly Gly Thr Cys Ala Ala Ala Gly Thr Thr Cys
20 25 30
Cys Cys Cys Ala Gly Gly Cys Gly Cys
35 40

<210> 27
<211> 40
<212> PRT
<213> Unknown Organism

<220>
<223> Description of Unknown Organism: unknown

<400> 27
Thr Ala Cys Ala Ala Thr Cys Thr Ala Gly Ala Gly Cys Gly Gly Cys
1 5 10 15

Cys Gly Cys Gly Cys Thr Cys Ala Gly Ala Gly Gly Gly Thr Cys Thr
20 25 30

Ala Gly Thr Gly Cys Gly Ala Gly
35 40